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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/763,394

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Hae-seok Park

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EXAMINER

SCHINDLER, DAVID M

ART UNIT

PAPER NUMBER

2862

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,394

Applicant(s)

PARK ET AL.

Examiner

David Schindler

Art Unit

2862

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-38 is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/21/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the communication filed 3/16/2006.
2. The Examiner acknowledges the English translation, submitted 3/16/2006, of the foreign priority documents.

Claim Objections

3. Claim 1 is objected to because of the following informalities:

The phrase "pick-coil" on the last line is awkward.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 now recites "at least a portion of one of the excitation coil and the pick-up coil being sandwiched between the soft magnetic core and the other one of the excitation coil and the pick-coil" on the last two lines appears to introduce new matter

not originally disclosed. The newly added claim limitation allows for the pick-up coil to be sandwiched between the excitation coil and the soft magnetic core, however, this does not appear to be supported by the original disclosure. The Examiner notes, for example, Applicant's Figure 3E.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Choi et al. (herein referred to as "Choi") (6,411,086).

The applied reference has a common inventor and a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to Claim 1,

Choi discloses a soft magnetic core ((26) and (30)) formed on a semiconductor substrate (21) (Figure 5), an excitation coil ((24) and (28) and (32)) winding the soft magnetic core and being insulated by first (29) and second (25) insulating layers deposited above and below the soft magnetic core (note Figures 2 and 5 as well as Column 4, Lines 38-50), respectively, a pick-up coil (the pure white boxes in Figure 5), the pick-up coil winding the soft magnetic core and being insulated by third (31) and fourth (23) insulating layers deposited above and below the excitation coil (Figure 5), respectively, and at least a portion of the excitation coil being sandwiched between the soft magnetic core and the pick-up coil (Figure 5 / note the excitation coil immediately above core (26) and below the top pick-up coil portion) ((Figures 2 and 5) and (Column 3, Lines 32-67) and (Column 4, Lines 1-55)).

As to Claim 2,

Choi discloses the soft magnetic core includes two parallel bars each disposed on a same plane (Figure 2).

Note that the two bars are on, for example, a plane that cuts from top to bottom in Figure 2.

As to Claim 3,

Choi discloses the two parallel bars are aligned to have a length dimension in a direction of magnetic field detection (Figure 2).

As to Claim 4,

Choi discloses the excitation coil has a structure of alternately winding the two parallel bars substantially in a figure-eight pattern ((Figures 2 and 5) and (Column 3, Line 40) and (Column 4, Lines 46-48)).

As to Claim 5,

Choi discloses the pick-up coil has a structure of winding the two parallel bars together substantially in a solenoid pattern (Figure 2).

As to Claim 6,

Choi discloses the pick-up coil has a structure of individually winding the two parallel bars substantially in a solenoid pattern (Figures 2 and 5).

As to Claim 7,

Choi discloses the excitation coil has a structure of individually winding the two parallel bars substantially in a solenoid pattern (Figures 2 and 5).

As to Claim 8,

Choi discloses the pick-up coil has a structure of winding the two parallel bars together substantially in a solenoid pattern (Figures 2 and 5).

As to Claim 9,

Choi discloses the pick-up coil has a structure of individually winding the two parallel bars substantially in a solenoid pattern (Figures 2 and 5).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Choi et al. (herein referred to as "Choi") (6,411,086) in view of Fedeli et al. (herein referred to as "Fedeli") (6,690,164).

As to Claim 10,

Choi discloses as explained above.

Choi does not disclose the soft magnetic core is formed in a rectangular-ring type.

Fedeli discloses the soft magnetic core is formed in a rectangular-ring type (Figure 1A).

It would have been obvious to a person of ordinary skill in the art to modify Choi to include the soft magnetic core is formed in a rectangular-ring type as taught by Fedeli in order to utilize a readily available core capable of being used in a fluxgate magnetometer configuration.

As to Claim 11,

Choi does not disclose the rectangular ring is oriented to have a length dimension in a direction of magnetic field detection.

Fedeli discloses the rectangular ring is oriented to have a length dimension in a direction of magnetic field detection (Figure 1A).

It would have been obvious to a person of ordinary skill in the art to modify Choi to include the rectangular ring is oriented to have a length dimension in a direction of magnetic field detection as taught by Fedeli in order to utilize a readily available core capable of being used in a fluxgate magnetometer configuration for the detection of magnetic fields.

As to Claim 12,

Choi discloses the excitation coil has a structure of alternately winding two cores aligned in the direction of magnetic field detection substantially in a figure-eight pattern (Figures 2 and 5).

Choi does not disclose the excitation coil has a structure of alternately winding two opposite sides of the rectangular core.

Fedeli discloses the excitation coil has a structure of alternately winding two opposite sides of the rectangular core (Figure 1A).

It would have been obvious to a person of ordinary skill in the art to modify Choi to include the excitation coil has a structure of alternately winding two opposite sides of the rectangular core as taught by Fedeli in order to utilize the device as a fluxgate magnetometer to detect magnetic fields.

As to Claim 13,

Choi discloses the pick-up coil has a structure of winding two cores in the direction of magnetic field detection together substantially in a solenoid pattern (Figures 2 and 5).

Choi does not disclose the pick-up coil has a structure of winding two opposite sides of the rectangular ring.

Fedeli discloses the pick-up coil has a structure of winding two opposite sides of the rectangular ring (Figure 1A).

It would have been obvious to a person of ordinary skill in the art to modify Choi to include the pick-up coil has a structure of winding two opposite sides of the rectangular ring as taught by Fedeli in order to utilize the device as a fluxgate magnetometer to detect magnetic fields.

As to Claim 14,

Choi discloses the pick-up coil has a structure of individually winding two cores aligned in the direction of magnetic field detection substantially in a solenoid pattern (Figures 2 and 5).

Choi does not disclose the pick-up coil has a structure of individually winding two opposite sides of the rectangular ring.

Fedeli discloses the pick-up coil has a structure of individually winding two opposite sides of the rectangular ring (Figure 1A).

It would have been obvious to a person of ordinary skill in the art to modify Choi to include the pick-up coil has a structure of individually winding two opposite sides of

the rectangular ring as taught by Fedeli in order to utilize the device as a fluxgate magnetometer to detect magnetic fields.

As to Claim 15,

Choi discloses the excitation coil has a structure of individually winding two cores aligned in the direction of magnetic field detection substantially in a solenoid pattern (Figures 2 and 5).

Choi does not disclose the excitation coil has as structure of individually winding two opposite sides of the rectangular ring.

Fedeli discloses the excitation coil has as structure of individually winding two opposite sides of the rectangular ring (Figure 1A).

It would have been obvious to a person of ordinary skill in the art to modify Choi to include the excitation coil has as structure of individually winding two opposite sides of the rectangular ring as taught by Fedeli in order to utilize the device as a fluxgate magnetometer to detect magnetic fields.

As to Claim 16,

Choi discloses the pick-up coil is deposited on the excitation coil, and has a structure of winding two cores in the direction of magnetic field detection together substantially in a solenoid pattern (Figures 2 and 5).

Choi does not disclose the pick-up coil has a structure of winding two opposite sides of the rectangular ring.

Fedeli discloses the pick-up coil has a structure of winding two opposite sides of the rectangular ring (Figure 1A).

It would have been obvious to a person of ordinary skill in the art to modify Choi to include the pick-up coil has a structure of winding two opposite sides of the rectangular ring as taught by Fedeli in order to utilize the device as a fluxgate magnetometer to detect magnetic fields.

As to Claim 17,

Choi discloses the pick-up coil is deposited on the excitation coil, and has a structure of individually winding two cores aligned in the direction of magnetic field detection substantially in a solenoid pattern (Figures 2 and 5).

Choi does not disclose the pick-up coil has a structure of individually winding two opposite sides of the rectangular ring.

Fedeli discloses the pick-up coil has a structure of individually winding two opposite sides of the rectangular ring (Figure 1A).

It would have been obvious to a person of ordinary skill in the art to modify Choi to include the pick-up coil has a structure of individually winding two opposite sides of the rectangular ring as taught by Fedeli in order to utilize the device as a fluxgate magnetometer to detect magnetic fields.

Allowable Subject Matter

11. Claims 18-38 allowed.

Response to Arguments

12. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

With regard to Applicant's arguments in the last paragraph of page 4 and the first two lines of page 5 of the Remarks, please note the above 35 U.S.C. 112 rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone


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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


David Schindler
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